STATE OF PROJECT SHEET TOTAL SHEETS
OUTH DAKOTA IM 0902(158)111 C1 C7

SECTION C: TRAFFIC CONTROL

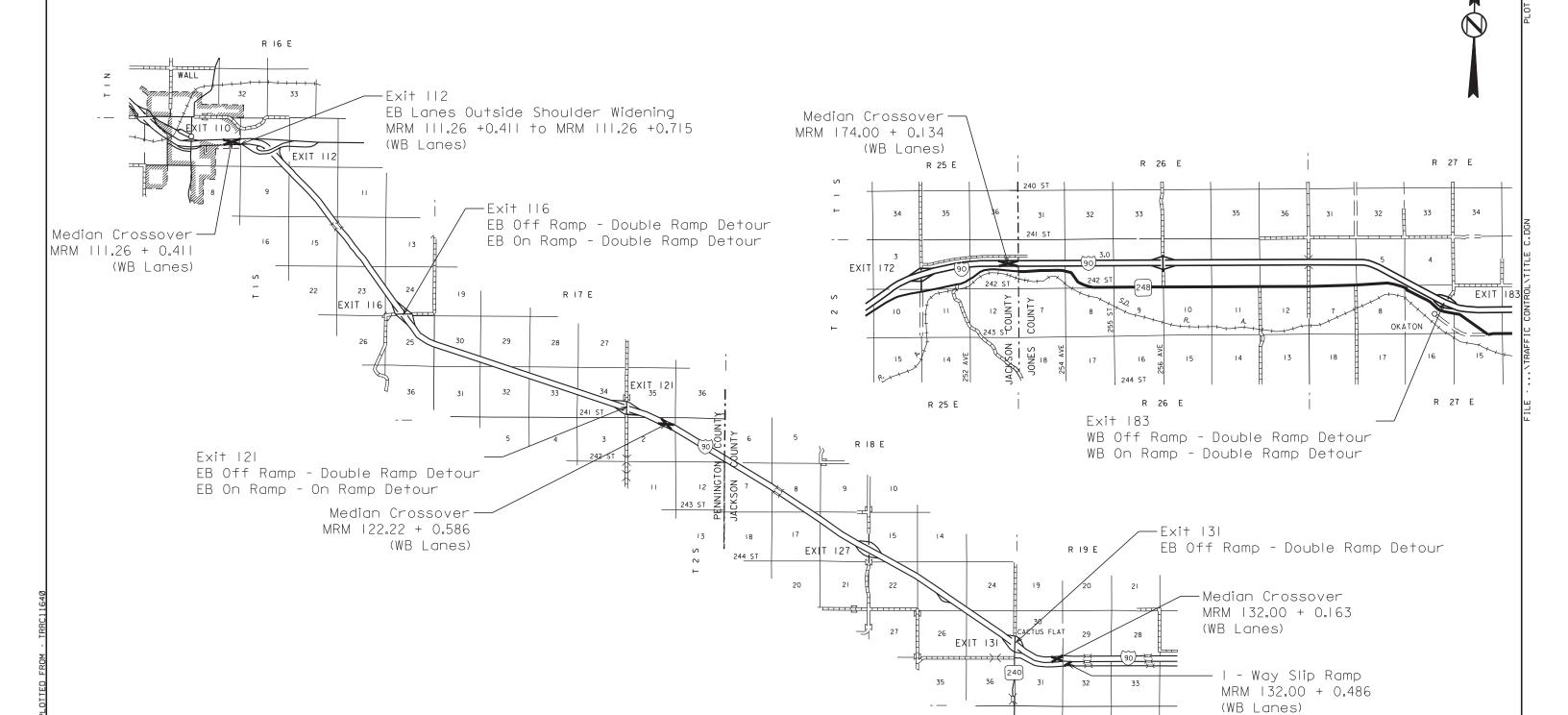
INDEX OF SHEETS

1 GENERAL LAYOUT WITH INDEX

C2-C3 ESTIMATE WITH GENERAL NOTES AND TABLES C4 RAMP ENTRANCE AND EXIT DETAILS

Plotting Date: 04/06/2012

C5-C7 STANDARD PLATES



SECTION C ESTIMATE OF QUANTITIES

Bid Item Number	Item	Quantity	Unit
110E1400	Remove Pavement Marking, 4" or Equivalent	2,400	Ft
634E0010	Flagging	4,000	Hour
634E0100	Traffic Control	9,412	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	4	Each
634E0640	Temporary Pavement Marking	2,600	Ft

WORK DESCRIPTION

Work on this project will consist of constructing new median crossovers and ramp detours.

SEQUENCE OF OPERATIONS – GENERAL NOTES

- Requests to deviate from the sequence of operations shall be submitted in writing to the Engineer for review. Approval of an alternate sequence of operations will only be allowed when the proposed changes meet with the Department's intent for traffic control and sequencing of the work. An alternate sequence shall be submitted for review a minimum of one week prior to potential implementation.
- 2. Unless otherwise stated in these plans, no work will be allowed during hours of darkness. Hours of darkness are defined, as ½ hour after sunset until ½ hour before sunrise.
- 3. Storage of vehicles and equipment shall be as near the right-of-way as possible. Contractor's employees should mobilize at a location off the right-of-way and arrive at the work sites in a minimum number of vehicles necessary to perform the work. Indiscriminate driving and parking of vehicles within the right-of-way will not be permitted. Any damage of the vegetation, surfacing, embankment, delineators, and existing signs resulting from such indiscriminate use shall be repaired and/or restored by the Contractor, at no expense to the State, and to the satisfaction of the Engineer.
- 4. All materials and equipment shall be stored minimum of 30 feet from edge of traveled path during nonworking hours.
- All construction operations shall be conducted in the general direction of traffic movement.
- 6. Vehicles working in traffic or alongside traffic shall be equipped with a flashing amber light visible from all directions. The amber light shall be mounted on the uppermost part of the contractor's vehicle. Lights must have peak intensity within the range of 40 to 400 candelas and must flash at 75 ± 15 flashes per minute. Vehicle flasher/hazard lights are not acceptable.
- 7. Existing guide, route, informational logo, regulatory, and warning signs shall be temporarily reset and maintained during construction. Non applicable signing, including construction signing, shall be covered completely or removed from shoulder during periods of inactivity. Period of inactivity is defined as 3 days. All costs to perform this work shall be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

- 8. The bottom of all signs on portable or temporary supports shall not be less than seven feet above the pavement in urban areas and one foot above the pavement in rural areas. Portable sign supports may be used as long as the duration is less than 3 days. Construction signing that remains in the same location for more than 3 days shall be mounted on fixed location, ground mounted, breakaway supports during the time of initial installation, except portable sign supports will be allowed where surfacing prohibits installation.
- Temporary Road Markers shall be used for lane closure tapers or lane shift tapers. Temporary Road Markers used for tapers and shifts will not be measured for payment and will be incidental to the contract lump sum price for Traffic Control, Miscellaneous.
- 10. The Contractor shall provide documentation that all breakaway sign supports comply with FHWA NCHRP 350 or MASH crash-worthy requirements. The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies.
- 11. The Contractor shall be required to have a person available 24 hour/day, 7 days/week to maintain traffic control devices. The name and cellular telephone number of this individual shall be given to the Engineer at the preconstruction meeting.
- 12. The contractor or designated traffic control subcontractor shall make night inspections at the initial set up of traffic control and every week thereafter to ensure the adequacy, legibility and reflectivity of each sign and device. A written summary of each inspection shall be given to the Engineer within 24 hours after completion of the inspection. The cost for the nighttime inspection work shall be incidental to the related contract items.
- 13. Removing, relocating, covering, salvaging and resetting of existing traffic control devices, including signing and delineation, shall be the responsibility of the Contractor. Cost for this work shall be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost shall be replaced by the Contractor at no cost to the State.
- 14. Vertical drop-offs resulting from excavation near the traveled lane greater than 1 foot will not be permitted overnight. Excavation that would result in an overnight drop-off greater than 1 foot shall be protected by placing embankment adjacent to the vertical edge at a slope of no steeper than a 5:1. All excavations shall be delineated by barrels at 25' spacing.
- 15. All costs to provide, mount, and maintain the flashing light on top of the Yield signs and the flags used on the signs as shown in these plans shall be incidental to the contract lump sum price for "Traffic Control, Miscellaneous.
- 16. Construction related traffic for the delivery of material and equipment including but not limited to aggregates, concrete, cement, asphalt, salvage base material, asphalt concrete pavement, etc. shall not cross interstate traffic. Construction traffic shall only enter and exit the interstate by the use of existing interchanges. The Contractor will be allowed to use maintenance crossovers providing all of the following requirements are met:

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
SOUTH DAKOTA	IM 0902(158)111	C2	C7

- The passing lanes in both directions are closed and signed as per Standard Plate No. 634.63.
- Flaggers may be required to prevent through traffic from entering the passing lanes used by turning trucks.
- A minimum of one mile shall always be maintained from the end of an active construction work zone (in the driving lane) to where haul trucks turn from the passing lane across a maintenance crossover.
- All crossover use is subject to approval by the Engineer and will not be allowed if deemed unsafe for the physical conditions and traffic.
- All damage to the maintenance crossovers shall be repaired after work is completed at the Contractors expense.

SEQUENCE OF OPERATIONS

Work shall proceed according to the following sequence or as approved by the Engineer:

- 1. Close passing lanes using Standard Plate No.634.63 and move traffic to the driving lanes.
- 2. Complete work in the median.
- 3. Close driving lanes using Standard Plate No.634.63 and move traffic to the passing lanes.
- 4. Complete work on the shoulder for slip ramps Use Standard Plate No.634.69 and the "Ramp Entrance and Exit Traffic Control Details" drawing for work on the ramps.
- 5. Complete work on the service road for the slip ramp using Standard Plate No.634.25.

Note: Only 2 sites can be worked on at any one time. Sites shall be completed from west to east.

REMOVE PAVEMENT MARKING 4", OR EQUIVALENT

All pavement marking removals shall be done by methods approved by the Engineer.

TEMPORARY PAVEMENT MARKING

Temporary Pavement Marking paint shall be used as directed by the Engineer.

Any temporary pavement marking arrows that are needed will be paid for as 250' of Temporary Pavement Marking. All other temporary striping, including stopbars, will be measured as an equivalent of 4" Temporary Pavement Marking and will be paid for at the contract unit price per foot for Temporary Pavement Marking.

INVENTORY OF TRAFFIC CONTROL DEVICES

Site #1 - MRM 111 Crossover/Exit 112 Ramp Detour

SIGN CODE	SIGN SIZE	DESCRIPTION	NUM BER REQUIRED	UNITS PER SIGN	UNITS
G20-1	36" x 18"	ROAD WORK NEXT ## MILES	3	17	51
R2-1	24" x 30"	SPEED LIMIT ##	6	18	108
R2-6aP	24" x 18"	FINES DOUBLE	4	7	28
W3-5	48" x 48"	REDUCED SPEED LIMIT AHEAD	4	34	136
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	4	34	136
W5-4	48" x 48"	RAMP NARROWS	1	34	34
W13-1P	30" x 30"	ADVISORY SPEED PLATE	1	21	21
W13-4P	30" X 30"	ON RAMP	1	21	21
W20-1	48" x 48"	ROAD WORK #### FT. OR AHEAD	4	34	136
W20-1a	48" x 48"	RAMP WORK AHEAD	1	34	34
W20-5	48" x 48"	LT. OR RT. LANE CLOSED #### FT. OR AHEAD	4	34	136
W20-7a	48" x 48"	FLAGGER	2	34	68
W5-5R	48" x 48"	Right Lane Closed 1/2 Mile	4	34	136
****		TYPE III BARRICADE - 8 FT. SINGLE SIDED	4	40	160

TOTAL UNITS 1205

TOTAL UNITS 1386

Site #2 - Exit 116 Ramp Detours

SIGN CODE	SIGN SIZE	DESCRIPTION	NUM BER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	3	17	51
R1-2	36" x 36"	YIELD	1	27	27
R2-1	24" x 30"	SPEED LIMIT ##	7	18	126
R2-6aP	24" x 18"	FINES DOUBLE	4	7	28
W3-2	48" x 48"	YIELD AHEAD (SYMBOL)	1	34	34
W3-5	48" x 48"	REDUCED SPEED LIMIT AHEAD	4	34	136
W4-1	48" x 48"	MERGE (SYMBOL)	1	34	34
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	4	34	136
W5-4	48" x 48"	RAMP NARROWS	1	34	34
W13-1P	30" x 30"	ADVISORY SPEED PLATE	1	21	21
W13-4P	30" X 30"	ON RAMP	1	21	21
W20-1	48" x 48"	ROAD WORK #### FT. OR AHEAD	5	34	170
W20-1a	48" x 48"	RAMP WORK AHEAD	1	34	34
W20-4	48" x 48"	ONE LANE ROAD #### FT. OR AHEAD	1	34	34
W20-5	48" x 48"	LT. OR RT. LANE CLOSED #### FT. OR AHEAD	4	34	136
W20-7a	48" x 48"	FLAGGER	2	34	68
W5-5R	48" x 48"	Right Lane Closed 1/2 Mile	4	34	136
****		TYPE III BARRICADE - 8 FT. SINGLE SIDED	4	40	160

Site #3 - Exit 121 Ramp Detours/MRM 122 Crossover

SIGN CODE	SIGN SIZE	DESCRIPTION	NUM BER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	3	17	51
R1-2	36" x 36"	YIELD	1	27	27
R2-1	24" x 30"	SPEED LIMIT ##	7	18	126
R2-6aP	24" x 18"	FINES DOUBLE	4	7	28
W3-2	48" x 48"	YIELD AHEAD (SYMBOL)	1	34	34
W3-5	48" x 48"	REDUCED SPEED LIMIT AHEAD	4	34	136
W4-1	48" x 48"	MERGE (SYMBOL)	1	34	34
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	4	34	136
W5-4	48" x 48"	RAMP NARROWS	1	34	34
W13-1P	30" x 30"	ADVISORY SPEED PLATE	1	21	21
W13-4P	30" X 30"	ON RAMP	1	21	21
W20-1	48" x 48"	ROAD WORK #### FT. OR AHEAD	5	34	170
W20-1a	48" x 48"	RAMP WORK AHEAD	1	34	34
W20-4	48" x 48"	ONE LANE ROAD #### FT. OR AHEAD	1	34	34
W20-5	48" x 48"	LT. OR RT. LANE CLOSED #### FT. OR AHEAD	4	34	136
W20-7a	48" x 48"	FLAGGER	2	34	68
W5-5R	48" x 48"	Right Lane Closed 1/2 Mile	4	34	136
****		TYPE III BARRICADE - 8 FT. SINGLE SIDED	4	40	160
			TOTAL U	JNITS	1386

Site #4 - Exit 127 Ramp Detours

SIGN CODE	SIGN SIZE	DESCRIPTION	NUM BER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	3	17	51
R1-2	36" x 36"	YIELD	1	27	27
R2-1	24" x 30"	SPEED LIMIT ##	7	18	126
R2-6aP	24" x 18"	FINES DOUBLE	4	7	28
W3-2	48" x 48"	YIELD AHEAD (SYMBOL)	1	34	34
W3-5	48" x 48"	REDUCED SPEED LIMIT AHEAD	4	34	136
W4-1	48" x 48"	MERGE (SYMBOL)	1	34	34
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	4	34	136
W5-4	48" x 48"	RAMP NARROWS	1	34	34
W13-1P	30" x 30"	ADVISORY SPEED PLATE	1	21	21
W13-4P	30" X 30"	ON RAMP	1	21	21
W20-1	48" x 48"	ROAD WORK #### FT. OR AHEAD	5	34	170
W20-1a	48" x 48"	RAMP WORK AHEAD	1	34	34
W20-4	48" x 48"	ONE LANE ROAD #### FT. OR AHEAD	1	34	34
W20-5	48" x 48"	LT. OR RT. LANE CLOSED #### FT. OR AHEAD	4	34	136
W20-7a	48" x 48"	FLAGGER	2	34	68
W5-5R	48" x 48"	Right Lane Closed 1/2 Mile	4	34	136
****		TYPE III BARRICADE - 8 FT. SINGLE SIDED	4	40	160
			TOTAL U	JNITS	1386

Site #5 - Exit 131 Ramp Detours/MRM 132 Crossover and Slip Ramp

SIGN CODE	SIGN SIZE	DESCRIPTION	NUM BER REQUIRED	UNITS PER SIGN	UNITS
G20-1	36" x 18"	ROAD WORK NEXT ## MILES	3	17	51
G20-2	36" x 18"	END ROAD WORK	5	17	85
R1-1	30" x 30"	STOP	2	21	42
R1-2	36" x 36"	YIELD	1	27	27
R2-1	24" x 30"	SPEED LIMIT ##	7	18	126
R2-6aP	24" x 18"	FINES DOUBLE	4	7	28
W1-4	48" x 48"	REVERSE CURVE SIGN (LEFT OR RIGHT)	1	34	34
W3-1	48" x 48"	STOP AHEAD (SYMBOL)	2	34	68
W3-2	48" x 48"	YIELD AHEAD (SYMBOL)	1	34	34
W3-5	48" x 48"	REDUCED SPEED LIMIT AHEAD	4	34	136
W4-1	48" x 48"	MERGE (SYMBOL)	1	34	34
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	4	34	136
W5-4	48" x 48"	RAMP NARROWS	1	34	34
W13-1P	30" x 30"	ADVISORY SPEED PLATE	3	21	63
W13-4P	36" X 36"	ON RAMP	1	27	27
W20-1	48" x 48"	ROAD WORK #### FT. OR AHEAD	7	34	238
W20-1a	48" x 48"	RAMP WORK AHEAD	1	34	34
W20-4	48" x 48"	ONE LANE ROAD #### FT. OR AHEAD	3	34	102
W20-5	48" x 48"	LT. OR RT. LANE CLOSED #### FT. OR AHEAD	4	34	136
W20-7a	48" x 48"	FLAGGER	2	34	68
W5-5R	48" x 48"	Right Lane Closed 1/2 Mile	4	34	136
****		TYPE III BARRICADE - 8 FT. SINGLE SIDED	4	40	160
****		TYPE III BARRICADE - 8 FT. DOUBLE SIDED	1	56	56
			TOTAL (JNITS	1855

Site #6 - MRM 174 Crossover

SIGN CODE	SIGN SIZE	DESCRIPTION	NUM BER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	2	17	34
R2-1	24" x 30"	SPEED LIMIT ##	3	18	54
R2-6aP	24" x 18"	FINES DOUBLE	4	7	28
W3-5	48" x 48"	REDUCED SPEED LIMIT AHEAD	4	34	136
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	4	34	136
W20-1	48" x 48"	ROAD WORK #### FT. OR AHEAD	4	34	136
W20-5	48" x 48"	LT. OR RT. LANE CLOSED #### FT. OR AHEAD	4	34	136
W20-7a	48" x 48"	FLAGGER	2	34	68
****		TYPE III BARRICADE - 8 FT. SINGLE SIDED	2	40	80
	TOTAL UNITS 808				

STATE OF SOUTH DAKOTA

IM 0902(158)111

SHEET

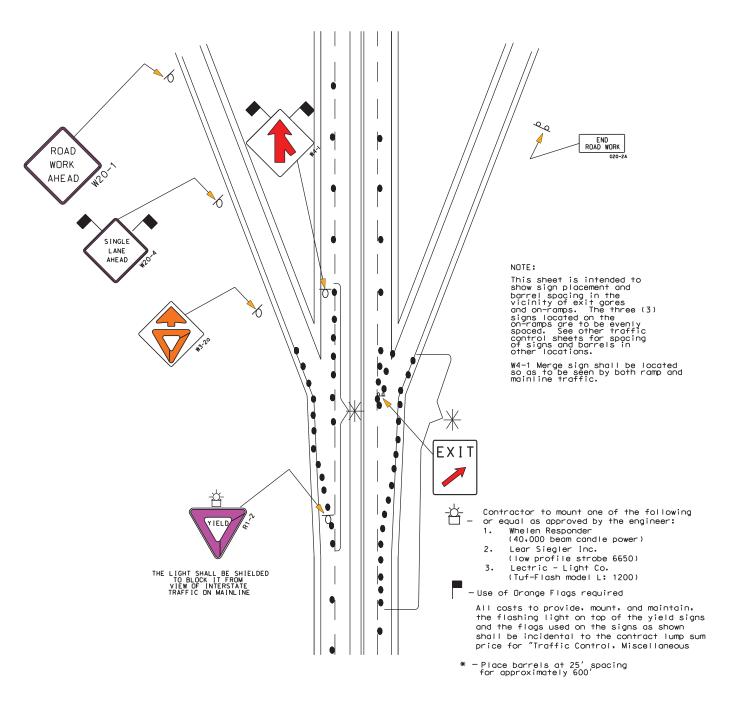
C3

Site #7 - Exit 183 Ramp Detours

SIGN CODE	SIGN SIZE	DESCRIPTION	NUM BER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	3	17	51
R1-2	36" x 36"	YIELD	1	27	27
R2-1	24" x 30"	SPEED LIMIT ##	7	18	126
R2-6aP	24" x 18"	FINES DOUBLE	4	7	28
W3-2	48" x 48"	YIELD AHEAD (SYMBOL)	1	34	34
W3-5	48" x 48"	REDUCED SPEED LIMIT AHEAD	4	34	136
W4-1	48" x 48"	MERGE (SYMBOL)	1	34	34
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	4	34	136
W5-4	48" x 48"	RAMP NARROWS	1	34	34
W13-1P	30" x 30"	ADVISORY SPEED PLATE	1	21	21
W13-4P	30" X 30"	ON RAMP	1	21	21
W20-1	48" x 48"	ROAD WORK #### FT. OR AHEAD	5	34	170
W20-1a	48" x 48"	RAMP WORK AHEAD	1	34	34
W20-4	48" x 48"	ONE LANE ROAD #### FT. OR AHEAD	1	34	34
W20-5	48" x 48"	LT. OR RT. LANE CLOSED #### FT. OR AHEAD	4	34	136
W20-7a	48" x 48"	FLAGGER	2	34	68
W5-5R	48" x 48"	Right Lane Closed 1/2 Mile	4	34	136
****		TYPE III BARRICADE - 8 FT. SINGLE SIDED	4	40	160
	-		TOTAL U	JNITS	1386

Plotting Date: 02/22/2012

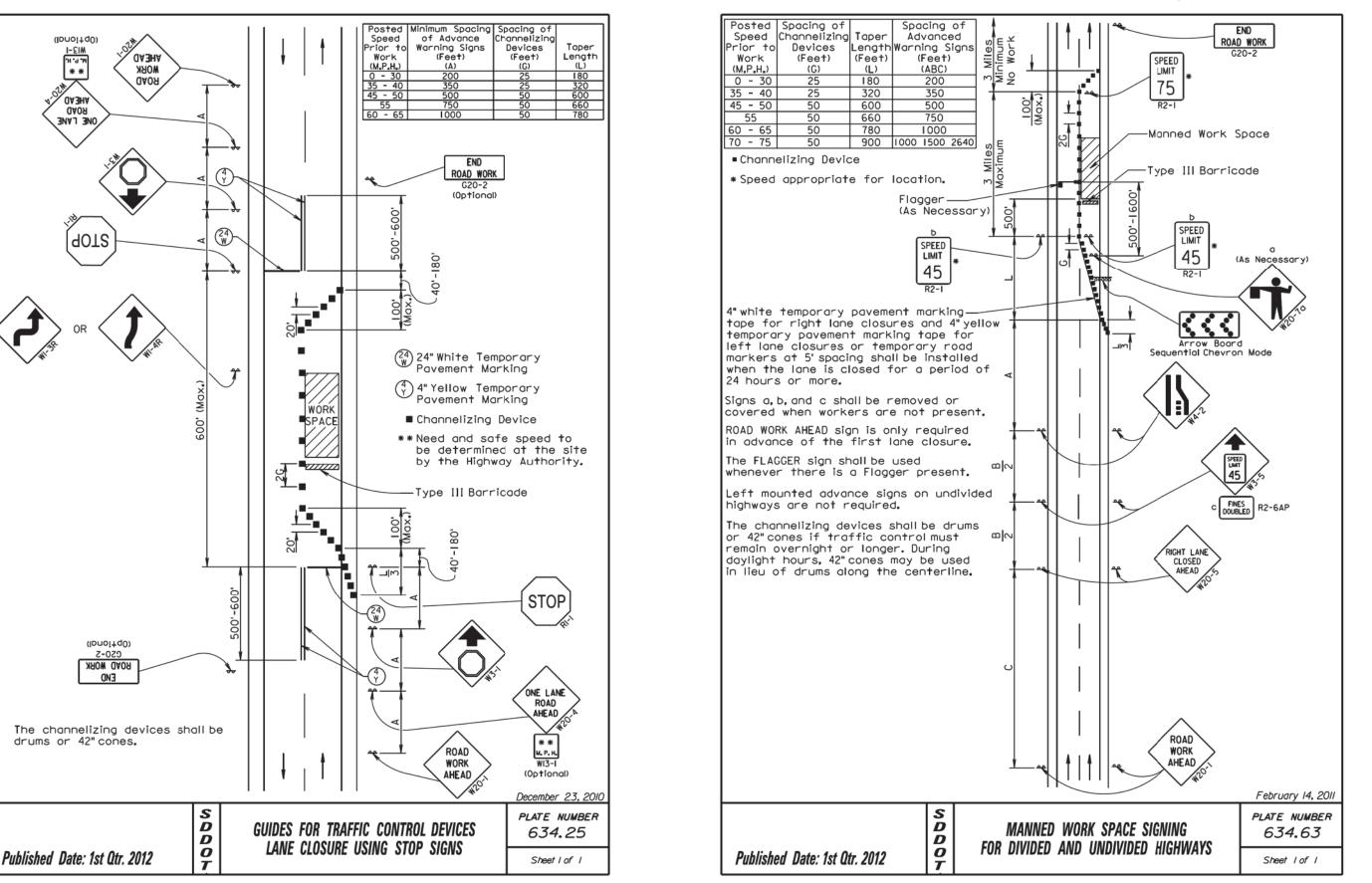
RAMP ENTRANCE AND EXIT TRAFFIC CONTROL DETAILS



SIGNING LAYOUT FOR TRAFFIC MERGING AT RAMPS - TRAFFIC IN PASSING LANE

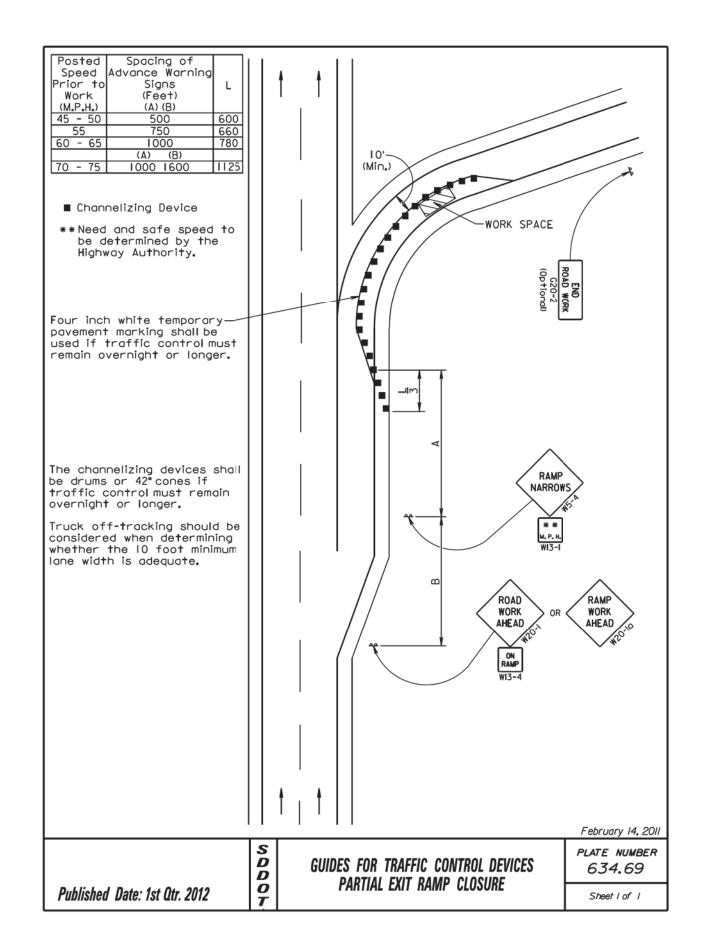
STATE OF	PROJECT	SHEET	TOTAL SHEETS
SOUTH DAKOTA	IM 0902(158)111	C5	C7

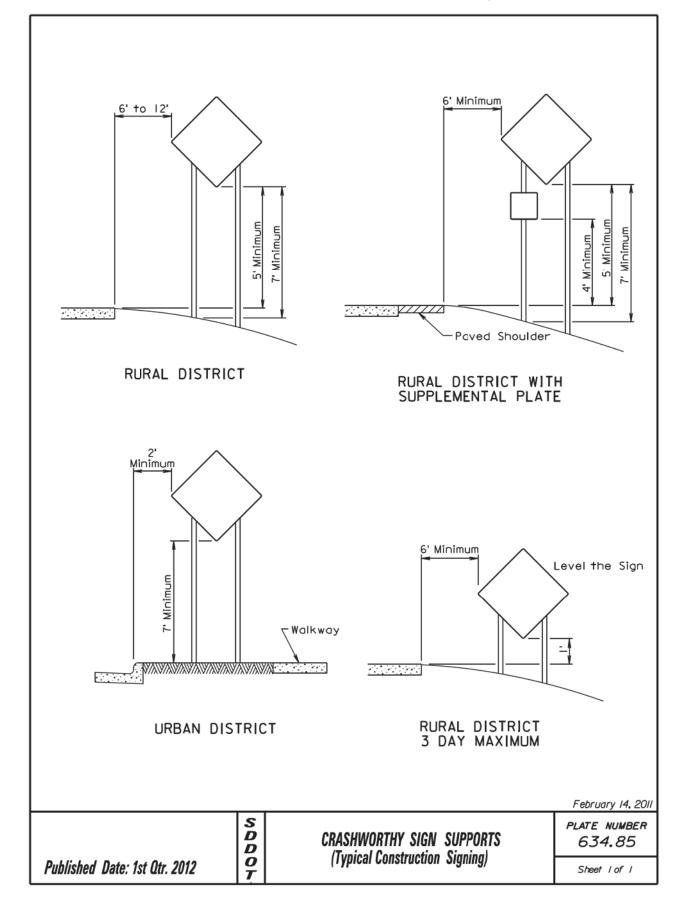
Plotting Date: 02/27/2012



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0902(158)111	C6	C7

Plotting Date: 02/27/2012





Examples of-60"Chord Line Clearance Checks

Top of Anchor Post or Slip Base-

Chord Line-

GENERAL NOTES:

S D D O T

PLAN VIEW (Examples of stub height clearance checks)

60"

ELEVATION VIEW

The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height shall be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

*634.*99

July I, 2005

PLATE NUMBER BREAKAWAY SUPPORT STUB CLEARANCE Sheet I of I

Ground Line-

-Anchor Post or Slip Base

120" Diameter

clearance checks)

(Perimeter of stub height

PROJECT STATE OF SHEET TOTAL SHEETS C7 DAKOTA IM 0902(158)111 C7

Plotting Date: 02/27/2012